



United States Department of the Interior




In Reply Refer to:
08ESMF00-
2018-F-0976-1

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

JUL 30 2018

Memorandum

To: Richard Wooley, Regional Resources Manager, U.S. Bureau of Reclamation, Mid-Pacific Regional Office, Sacramento, California

From:  Jennifer M. Norris, Field Supervisor, Sacramento Fish and Wildlife Office, Sacramento, California

Subject: Formal Consultation on the West Stanislaus Fish Screen Intake Project

This memorandum is in response to the Bureau of Reclamation's (Reclamation) December 28, 2017 request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed West Stanislaus Fish Screen Intake Project (proposed project) in Stanislaus County, California. Your request was received by the Service on January 2, 2018. At issue are the proposed project's effects on the federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle), endangered Least Bell's vireo (*Vireo bellii pusillus*) (vireo), endangered riparian brush rabbit (*Sylvilagus bachmani riparius*) (rabbit), endangered San Joaquin Valley (riparian) woodrat (*Neotoma fuscipes riparia*) (woodrat), and endangered San Joaquin kit fox (*Vulpes macrotis mutica*) (kit fox). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The federal action on which you have requested consultation is Reclamation's, in conjunction with the Anadromous Fish Screen Program (AFSP), proposed issuance of Central Valley Project Improvement Act (CVPIA) grant funding to the West Stanislaus Irrigation District (WSID) for the installation of cone fish screens at their existing diversion on the San Joaquin River. You have also requested that the U.S. Army Corps of Engineers' permitting action under the Clean Water Act's Section 404 and/or Rivers and Harbors Act's Section 10 be covered under this consultation. Pursuant to 50 CFR 402.12(j), you submitted the biological assessment (BA) for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is likely to adversely affect the beetle, vireo, rabbit, and woodrat and that the proposed project may affect, but is not likely to adversely affect the kit fox. In addition, Reclamation determined that the proposed project will not adversely modify critical habitat for any federally-listed species as none occurs within the proposed project area.

In considering your request, we based our evaluation on the following: (1) the December 28, 2017, request for consultation, (2) the November 2017 Biological Assessment (BA), (3) comments on the proposed project submitted to the Service and Reclamation by the San Luis National Wildlife Refuge Complex (SLNWRC) on December 20, 2017, (4) the March 27, 2018, memorandum and

May 22, 2018, email transmitting additional information for the proposed project, and (5) other information available to the Service. The Service received complete information for this project on May 22, 2018.

The proposed project site is located within the range of the kit fox and potential foraging habitat is present throughout the proposed project site with potential den sites along the levees or access roads. However, according to the California Natural Diversity Database (CNDDB), the most recent recorded occurrences of kit fox within a 20 mile radius of the proposed project site occurred in the 1990s. In addition, the proposed project site is located within a matrix of intensively cultivated lands, which likely pose a movement barrier to kit foxes dispersing into the area.

Conservation Measures

WSID has proposed to implement the following measures to avoid and minimize effects on the kit fox:

1. A Service-approved biologist will survey the project area for San Joaquin kit fox and potential dens within 30 days, and no less than 14 days, prior to construction. Surveys will follow the recommendations in the Service's *San Joaquin Kit Fox Survey Protocol for the Northern Range* (1999). If an active den is discovered during surveys, WSID will immediately contact the Service. WSID will follow den monitoring and avoidance procedures as described in the *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (Service 2011b).
2. To prevent inadvertent entrapment of San Joaquin kit fox or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than two feet deep will be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. In the case of trapped animals, the Service-approved biologist will immediately place escape ramps or structures will be installed to allow the animal(s) to escape, or the Service will be contacted for guidance.
3. Construction activities will stop in the area if a trapped or injured San Joaquin kit fox is discovered until the Service is contacted for guidance.
4. San Joaquin kit fox are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a San Joaquin kit fox is discovered inside a pipe, that section of pipe will not be moved until the San Joaquin kit fox has left on its own. If the San Joaquin kit fox remains in the pipe for more than a day, then under the direct supervision of the Service-approved biologist, the pipe may be moved once away from all construction activity until the kit fox has escaped.
5. A representative will be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a San Joaquin kit fox or who finds a dead, injured, or entrapped kit fox. The representative will be identified

during the employee education program and their name and telephone number will be provided to the Service.

6. The Sacramento Fish and Wildlife Office and California Department of Fish and Wildlife (CDFW) will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species at the following: Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-1846, (916) 414-6544. The CDFW contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309. New sightings of kit fox will be reported to the CNDDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed will also be provided to the Service at the following: Endangered Species Division, 2800 Cottage Way, Suite W2605, Sacramento, California 95825-1846, (916) 414-6544.

The Service concurs with your determination that the proposed project may affect, but is not likely to adversely affect the kit fox. Based on WSID's commitment to adhere to the avoidance and minimization measures, the temporary nature of the proposed project, and the low likelihood of kit fox use of the proposed project site, it is the Service's opinion that the proposed project will have a discountable effect on the kit fox.

The remainder of this document provides our biological opinion on the effects of the proposed project on the beetle, vireo, rabbit, and woodrat.

Consultation History

<i>June 27, 2017:</i>	The Service received an electronic copy of Reclamation's draft BA dated May 2017.
<i>July 21, 2017:</i>	Reclamation and the Service discussed via conference call impacts to the beetle and incorporation of the Service's newly published <i>Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle</i> .
<i>August 3, 2017:</i>	Service biologist toured the proposed project site and adjacent San Joaquin River National Wildlife Refuge (SJRNWR) lands with the refuge manager. Discussions included the SJRNWR's rabbit re-establishment efforts as well as locations of species' habitat within the proposed project.
<i>December 20, 2017:</i>	The Service received comments on the proposed project from the SJRNWR, which were also provided to Reclamation. The primary concern documented by the SJRNWR was the effects of operating the Lara Tract spillway structure on the rabbit and woodrat.
<i>January 2, 2018:</i>	The Service received hard copies of Reclamation's request for formal consultation on the proposed project.

- January 25, 2018:* The Service requested additional information from Reclamation regarding the effects of operating the Lara Tract spillway structure on listed species.
- February 26, 2018:* The Service met with Reclamation, WSID, and SJRNWR to discuss proposed project details. All parties agreed that the Lara Tract spillway structure would be removed from the proposed project and that consultation would be completed once the Service received the changes, in writing, from Reclamation.
- March 30, 2018:* The Service received Reclamation's memorandum transmitting the removal of the Lara Tract spillway structure from the proposed project.
- April 10, 2018:* The Service transmitted via email comments on the mitigation plan. Included in the transmittal was a request for clarification on credit purchase for the beetle as well as notification that mitigation bank credits for the vireo, rabbit, and woodrat are not available.
- May 18, 2018* Reclamation, the Service, and WSID discussed via conference call mitigation options for the vireo, rabbit, and woodrat.
- May 22, 2018* The Service received via email revisions to the mitigation plan, as discussed in the May 18, 2018, conference call.

BIOLOGICAL OPINION

Description of the Action

The proposed project is located in a rural area of the unincorporated community of Grayson, approximately 2.25 miles south of State Route 132, in northwestern Stanislaus County, California. The WSID intake canal from Pump Station 1A to the proposed fish screen intake is located on an easement within the SJRNWR, with the Lara Tract to the south and the Hagemann Tract to the north. The proposed project consists of the following elements, which are described in further detail below: (1) cone screens and a low-lift pump station located at the mouth of the existing intake canal; (2) sediment removal and management along the length of the intake canal; (3) approximately 2,100 feet of underground pipeline and an outfall structure for water conveyance from the proposed pump station to the intake; (4) two wildlife crossings over the intake canal; (5) facilities for providing late fall-water deliveries to the SJRNWR; (6) upgrading of existing roads along the intake canal; and (7) on-site restoration of riparian woodland. The proposed project also includes continuing their ongoing routine operation and maintenance for the intake canal to include terrestrial weed control, inspection and repair of washout areas, tree trimming and removal, installation, removal, and maintenance of log booms, and inspection of the intake site.

Fish Screen Intake and Pump Station

The proposed project includes installation and operation of a new 347 cubic feet per second (cfs) capacity screened intake with a low-lift pump station located on the bank of the San Joaquin River adjacent to the mouth of the WSID intake canal. Five vertical axial-flow pumps will be located in

five separate concrete structures connected by 63-inch diameter high-density polyethylene (HDPE) pipe conduits to the cone-type fish screens (cone screens). Each pump structure will include a variable frequency drive pump and motor, with flow capacity designed to range between <70 cfs to 100 cfs and will discharge into a common concrete structure. Ten stainless steel wedgewire cone screens 14 feet in diameter will be mounted on a pile-supported steel frame located approximately 70 feet in front of the pump station structure; the cone screens will extend a total of approximately 97 feet into the river. A permanent sheet pile will be installed to retain the pump station embankments and separate permanent sheet piles, with a top elevation approximately matching the river bed, will extend into the river to form an enclosure around the cone screen platform.

Electrical energy to power the pump station will be delivered via extension of WSID's existing distribution line. The power line extension will be underground, buried in the intake canal road, and will extend from WSID's Pump Station 1A to an electrical control building on the landside of the screened intake site. The pump station will be lighted for safety and operation using a combination of surveillance lighting and safety lighting. Surveillance lighting will be angled away from the river and will turn on only when triggered by motion. Safety lighting will be installed for use during maintenance activities. A fence 8 feet in height will be installed around the intake and pump station site. In addition, a fiber optic line and wireless radio will be installed to provide surveillance monitoring data.

WSID personnel will visit the intake site daily at a minimum for general inspection of equipment and site security. Additionally, sensors located at the intake canal will be inspected monthly at a minimum to be cleaned and calibrated. Intake screen maintenance will be performed at least annually during times when the river level is relatively low; pump maintenance will occur every 10 years. At times, screens may require removal for repair, which will require WSID staff to access the screens by boat or wade into the river to the fish screen platform. In addition, following a flooding event, rip rap will be evaluated and may require replacement utilizing a long-reach excavator staged out of the water.

Sediment Removal and Management

The fish screen intake and pump station facilities will include a pumped water jet system to prevent sediment from accumulating and impacting facility hydraulics. Sediment control system pumps will be submersible or vertical turbine and will be located in the common pump discharge area. Pump discharge will be piped to stainless steel spray jet manifolds in four general areas to re-suspend any accumulated sediment: common pump discharge area, pump bays, concrete conduits from the fish screens, and the fish screens.

After higher than normal flow rates of 5,000 cfs and above, additional sediment control maintenance will be needed. Sediment will be excavated using mechanical shovels or a suction system once flows reduced to average or low levels, as needed, and will be stockpiled adjacent to where it was dredged to dry. The dry sediment will then be loaded onto a dump truck and spread and compacted at low points on the south access road of the intake canal.

Conveyance Facilities

Conveyance from the pump station to approximately 200 feet west of the abandoned Corps levee will be made in two parallel underground steel pipelines, which will be approximately 2,100 feet long. These pipelines will be 60 inches and 90 inches in diameter, will be installed in an existing

disturbed area adjacent to an existing maintenance road and will be gated with sluice gates which will be 5 feet wide by 5 feet high and 8 feet wide by 8 feet high, respectively.

An outfall structure at the abandoned Corps levee will be constructed prior to the construction of the fish screen intake and other proposed facilities. The outfall structure will be located at the terminus of the conveyance pipelines and will consist of four gated box culverts for conveyance of irrigation water during construction of the other proposed facilities and after construction if the system cannot operate as designed. These box culverts will be 9 feet wide by 8 feet high and will be each gated with one sluice gate measuring 7 feet high and 7 feet wide installed on the downstream headwall and will be tested once a year for operability. Stop log guides will be installed on the upstream side of the box culverts in order to ensure that no unscreened water enters the intake canal. The elevation of the top of the common outlet headwall, where the conveyance pipelines and outfall structure terminate, will be 46 feet and the embankment over the box culverts and pipelines will match the elevation of the existing Corps levee.

Wildlife Crossings

Two crossings will be constructed across the intake canal which will allow wildlife passage and one of which will allow for vehicular passage and for floodwaters to cross the intake canal without intermingling screened diversion water with floodplain water. The crossings will be supported by earthen fill contained by two sheet pile walls driven perpendicular to the intake canal and penetrated by four culverts to convey intake canal flows. The East Crossing will be vegetated to provide a wildlife crossing. The West Crossing will be sited at the natural low point along the intake canal where flood flows concentrate. To allow flood waters to flow across the intake canal, this crossing will include four box culverts, which will be 10 feet wide by 8 feet high, installed with the culvert invert set at the existing ground elevation. The West Crossing would be graded annually to allow for vehicular passage. At both locations, water deliveries would be conveyed in four ungated box culverts, which will be 9 feet wide by 8 feet high, installed below the flood and wildlife passage culverts.

Refuge Water Deliveries

Riparian water diversion to the SJRNWR may be made from the intake canal into the Hagemann Tract at its low point along the intake canal via gravity flow when intake canal water surface elevation is at 28 feet or higher. This elevation will be controlled using the pumps located at the cone screens. Existing SJRNWR diversion pumps will not change with the proposed project.

Road Improvements

Year-round access will be provided to the intake facility through an improved intake canal levee road beginning at Pump Station 1A and continuing to the intake site. The existing maintenance roads along each side of the intake canal vary with regard to top-of-bank elevation. From Pump Station 1A to the new Corps levee crossing, the north maintenance road will be raised where necessary to an elevation of 44 feet. From the Corps levee crossing to the fish screen intake site, the south maintenance road will be constructed to an elevation of 46 feet. The completed roads will provide all-weather access to the fish screen intake and pump station.

Restoration

Once the proposed project construction is complete, the staging area southeast of the fish screen intake and access road will be restored into riparian woodland habitat using a mix of plant species similar to the restored woodlands present within the SJRNWR. The mix will consist of canopy tree species including Fremont cottonwood (*Populus fremontii*), black willow (*Salix gooddingii*), and valley oak (*Quercus lobata*); subcanopy trees including white alder (*Alnus rhombifolia*), box elder (*Acer negundo*), and Oregon ash (*Fraxinus latifolia*); and an understory shrub layer including wild grape (*Vitis californica*), California rose (*Rosa californica*), California blackberry (*Rubus ursinus*), blue elderberry (*Sambucus mexicana*), and shrubby willow species (*Salix* spp.).

Continued Operation and Maintenance

WSID will continue to perform the following routine operation and maintenance activities. Pre- and post-emergent herbicide applications along the intake canal will be performed twice a year. In addition, disking will be performed during the spring months using a tractor on the shoulders of access roads on both sides of the intake canal. Trees will be routinely trimmed and/or removed from the inner banks of the intake canal. Vegetation removal will generally occur between September 1 and January 1; however, activity may occur at any time during the year if required to support irrigation deliveries.

A log boom is installed in the intake canal to prevent a large amount of vegetation from entering WSID's pump station. The log boom will be removed, inspected, and reinstalled annually in the summer months when flows are reduced using a truck and excavator. Intake canal banks will be inspected annually for washout areas and repaired using native soil as needed. Material will be stockpiled adjacent to the repair area and then placed and compacted by an excavator and steel drum sheepsfoot or vibratory roller. Fencing and structures around the intake site will be inspected annually and repaired as needed.

The intake canal will require periodic dredging along its entire length, with more concentrated activities required just downstream of the outfall structure where sediment will settle out after transport in the conveyance pipelines. The sediment will be spread and compacted similar to the process after higher than normal flow rates. Sediment removal methods will be selected based on the condition and may include methods such as manual removal, clamshell or suction dredge from a barge, use of a long-reach excavator, or dragline operations. In general, sediment removal will be required every four or five years, at a minimum, but will be dependent upon the hydrological conditions for any given year or sequence of years.

Conservation Measures

WSID has proposed to implement the following measures to avoid and **minimize** effects to listed species. These measures are incorporated by the applicant as part of the Description of the Action.

The following measures will be implemented to avoid, **minimize**, and mitigate effects to the beetle:

1. Dust control measures will be implemented throughout the project site during construction.

2. Activities that may damage or kill an elderberry shrub (e.g. trenching, paving, etc.) will require an avoidance area of at least 6 meters (20 feet) from the drip-line, depending on the type of activity.
3. A qualified biologist will monitor the work area at project appropriate intervals to ensure that all avoidance and minimization measures are implemented. The amount and duration of monitoring will depend on the project specifics and shall be discussed with the Service biologist.
4. As much as feasible, all activities that could occur within 50 meters (165 feet) of an elderberry shrub will be conducted outside of the flight season of the beetle (March - July).
5. Herbicides will not be used within the drip-line of the shrub. Insecticides will not be used within 30 meters (98 feet) of an elderberry shrub. All chemicals will be applied using a backpack sprayer or a similar direct application method.
6. Mechanical weed removal within the drip-line of elderberry shrubs will be limited to the season when adults are not active (August – February) and will avoid damaging the elderberry.
7. Trimming or mowing of any elderberry shrubs within the canal that may become established in the future will ensure that no plants with stems >1 inch in diameter will be impacted.
8. For the five elderberry shrubs that are within the construction footprint, WSID will attempt to remove the entire root ball and transplant the shrub as close as possible to their original locations. Elderberry shrubs may be relocated adjacent to the project footprint if: 1) the planting location is suitable for elderberry growth and reproduction; and 2) the project proponent is able to protect the shrub and ensure that the shrub becomes established.
9. A qualified biologist will be on-site for the duration of transplanting activities to ensure compliance with avoidance and minimization measures and other conservation measures.
10. Exit-hole surveys will be completed immediately before transplanting. The number of exit holes found, GPS location of the plant to be relocated, and the GPS locations of where the plant is transplanted will be reported to the Service and to the CNDDB.
11. Elderberry shrubs will be transplanted when the shrubs are dormant (November through the first two weeks of February) and after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the shrub and increase transplantation success.
12. Transplanting will follow the most current version of the ANSI A300 (Part 6) guidelines for transplanting (<http://www.tcia.org/>).

In addition to the above minimization measures, WSID has proposed to mitigate the removal of elderberry shrubs within the proposed project site. Following the *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)* (Service 2017) (framework) compensation will occur through the purchase of credits through an approved mitigation bank per the disturbance shown below in Table 1. In addition, because WSID will also restore the riparian

habitat to be disturbed on-site, the compensation ratio for the 0.84 acres of beetle habitat will be debited as one acre of credit, resulting in the 2:1 compensation ratio shown in Table 1.

Table 1. Proposed compensation for unavoidable adverse impacts to the beetle.

Habitat	Compensation Level	Compensation Ratio	Disturbance	Credit Purchase ¹
Riparian	Habitat-level	2:1	0.84 acres ²	20.49
Non-riparian	Shrub-level	1:1	3 shrubs ³	3
Total				23.49

¹ one credit (unit) = 1,800 sq. ft. or 0.041 acre

² acre(s) of credits: acre(s) of disturbance, per Table 1 of the framework

³ number of credits: number of shrubs trimmed, per Table 2 of the framework

The following measures will be implemented to avoid, minimize, and mitigate effects to the vireo:

1. If possible, conduct any vegetation removal and grading activities during the non-breeding season (generally September 1 to January 1). If vegetation removal and grading activities must occur during the breeding season, preconstruction surveys and nest avoidance will be implemented as described below.
2. Prior to construction, surveys shall be conducted by a Service-approved biologist to survey for nesting least Bell's vireo within 500 feet of the proposed project site following the Service's January 2001 guidelines (found at: <https://www.fws.gov/pacific/ecoservices/endangered/recovery/documents/LBVireo.2001.protocol.pdf>). The guideline-level surveys include eight surveys, 10 days apart, between April 10 and July 31.
3. Establish appropriate no-work buffers to limit project-related construction activities near any active nest sites discovered during preconstruction surveys. The final size and dimensions of the buffer area will be determined by a Service-approved biologist in coordination with the Service. Buffers will remain in place until the chicks have fledged and are no longer reliant upon the nest or parental care for survival. The no-work buffer zone will be delineated by highly visible temporary construction fencing. In consultation with the Service, monitoring of nest activity 24 hours prior to and during construction activities by a Service-approved biologist will be required if the project-related construction activity has potential to adversely affect the nest or nesting behavior of the bird. No project-related construction activity will commence within the no-work buffer area until a Service-approved biologist and the Service confirm that the nest is no longer active.
4. WSID will also restore the 0.84 acre of riparian habitat to be disturbed on-site. The initial compensation ratio of 3:1 acres of mitigation to acres of disturbance would then be reduced to 2:1. WSID will restore at least 1.68 acres of riparian woodland habitat at an approved site to balance the amount of mitigation for disturbance to vireo habitat. Restoration activities will be focused on the SJRNWR or nearby Dos Rios Ranch. In the event that restoration opportunities at either of these locations is not available, equivalent riparian restoration at another nearby location will be implemented, subject to the Service's approval. WSID will enter into an agreement to fund the riparian habitat restoration with a restoration implementing entity of their choosing and provide the Service a copy of the executed agreement prior to the initiation of project construction.

The following measures will be implemented to avoid, minimize, and mitigate effects to the rabbit and woodrat:

1. If feasible, conduct any vegetation removal and grading activities during the non-breeding season (generally September 1 to January 1). If vegetation removal and grading activities must occur during the breeding season, preconstruction surveys and den (house) avoidance will be implemented as described below.
2. If vegetation removal occurs between January 1 and September 1, prior to any ground disturbance, a Service-approved biologist will conduct preconstruction surveys in potentially suitable habitats for San Joaquin valley woodrat and riparian brush rabbit dens (houses), and will focus on identifying any active or potential woodrat or rabbit den locations. If an active den is located, a protective buffer will be established in consultation with the Service until the young have been successfully reared, are able to leave the area without den abandonment or individual harassment, and it has been determined that construction can continue without affecting the animals.
3. Monitoring of any den locations will occur at regular intervals by a Service-approved monitor to ensure den abandonment or harassment does not occur. The monitor will be able to stop work as needed.
4. WSID will mitigate for disturbance to riparian habitat for the woodrat and rabbit by the restoration of 1.68 acres of riparian habitat, as explained above.

Action Area

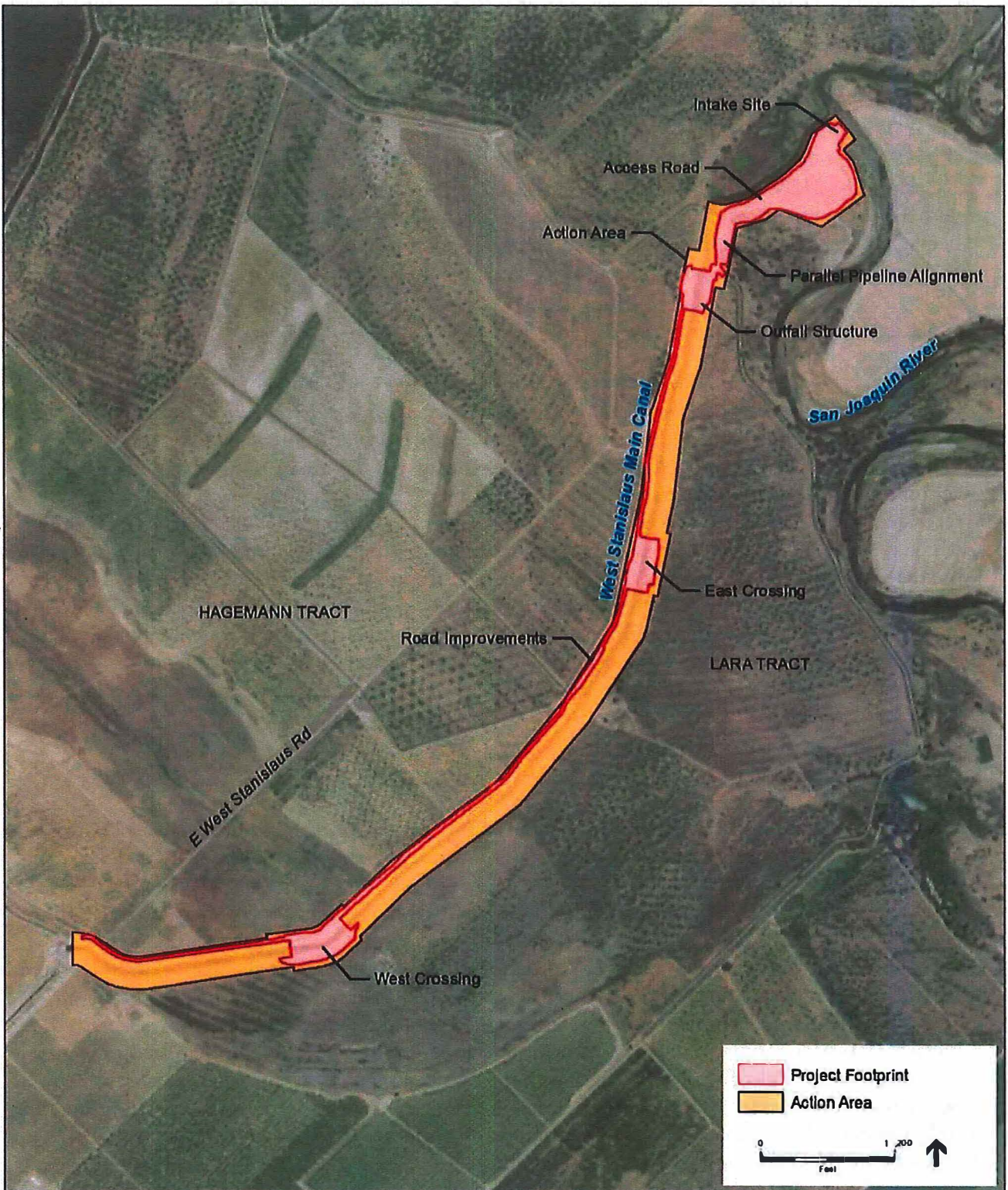
The action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” For the proposed project, the action area encompasses the 84.5 acres consisting of the proposed project footprint, access routes and staging areas (Figure 1).

Analytical Framework for the Jeopardy Determination

Section 7(a)(2) of the Endangered Species Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. “Jeopardize the continued existence of” means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed Federal action, and any cumulative effects, on the range-wide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the range-wide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the

Figure 1. Map, included in the November 2017 BA, of project action area encompassing the 84.5 acres consisting of the project footprint, access routes and staging areas.



SOURCE: ESRI, 2012; MWH, 2017; ESA 2017

West Stanislaus Irrigation District / 120642

species; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the species.

Status of the Species

Valley Elderberry Longhorn Beetle

For the most recent comprehensive assessment of the range-wide status of the beetle, please refer to the *Withdrawal of the Proposed Rule to Remove the Beetle From the Federal List of Endangered and Threatened Wildlife* (Federal Register 79: 55874-55917; <https://www.gpo.gov/fdsys/pkg/FR-2014-09-17/pdf/2014-21585.pdf>). Threats evaluated in the withdrawal have continued to act on the species, with loss of habitat being the most significant effect. While there have been continued losses of beetle habitat throughout its range, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the species.

Least Bell's Vireo

For the most recent comprehensive assessment of the range-wide status of the vireo, please refer to the *Least Bell's Vireo (Vireo bellii pusillus) 5-Year Review: Summary and Evaluation* (Service 2006). The 5-year review recommended that the species' status be down-listed to threatened as a result of increased breeding population numbers. Threats evaluated in the 5-year review have continued to act on the species with nest parasitism being the primary threat in limiting the vireo's overall recovery, and is more pronounced in conjunction with loss of habitat. Habitat loss was a factor which contributed greatly to the initial listing of the species, but appears to have been curtailed with the majority of habitat protection and restoration occurring within southern California. However, the threat of habitat loss within the larger historic range, particularly in the San Joaquin Valley, is still present. While there have been continued impediments to vireo recovery throughout its range, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the species. The Service is in the process of finalizing its most current 5-year review for the species.

Riparian Brush Rabbit

For the most recent comprehensive assessment of the range-wide status of the rabbit, please refer to the *Final Rule to List the Riparian Brush Rabbit and the Riparian, or San Joaquin Valley, Woodrat as Endangered* (Federal Register 65: 8881-8890; <https://www.gpo.gov/fdsys/pkg/FR-2000-02-23/pdf/00-4207.pdf#page=1>). Since the species' listing, additional private lands in San Joaquin County (referred to as the South Delta population) have been identified as having extant rabbits present, and a re-introduced population has been established on the SJRNWR (Phillips et al. 2013). Currently, there are three known populations of riparian brush rabbits: Caswell Memorial State Park, the South Delta, and SJRNWR. However, threats evaluated in the final rule have continued to act upon the species. Habitat loss outside of these known populations indirectly threaten the species to eliminate and fragment patches of remnant habitat within its historical range. The small, natural rabbit populations, are directly at risk from stochastic events such as wildfire, severe or recurring flooding, and prolonged drought as well as effects of inbreeding, disease, and predation. Most recently, Matocq et al. (2017) found that the re-introduced population on the SJRNWR represented high levels of genetic diversity with a unique genetic composition, which was likely the result of its complex history of population declines, repeated translocations, and natural gene flow from nearby semi-isolated populations. While the natural and re-introduced populations still face significant

threats of extinction, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the species.

Riparian Woodrat

For the most recent comprehensive assessment of the range-wide status of the woodrat, please refer to the *Riparian Woodrat (Neotoma fuscipes) 5-Year Review: Summary and Evaluation* (Service 2012). No change in the species' listing status was recommended in this 5-year review. Threats evaluated in the 5-year review have continued to act on the species, with effects of stochastic events, inbreeding, disease, and predation posing the most significant threats. The lack of remnant habitat also continues to restrict and isolate the remaining two populations of woodrat. While the threats to this species' survival are largely the same as they were when it was listed and reviewed, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the species.

Environmental Baseline

The proposed project is located in a rural area of the unincorporated community of Grayson in northwestern Stanislaus County, California. The WSID intake canal from Pump Station 1A to the proposed fish screen intake is located on an easement within the SJRNWR, with the Hagemann Tract to the north and the Lara Tract to the south. The proposed fish screen intake would be located on the San Joaquin River, approximately 2.25 miles south of State Route 132/Maze Boulevard. The City of Modesto is approximately 9 miles northeast of the proposed project site and Interstate 5 lies approximately 6 miles southwest.

Currently, an existing intake diverts up to 347 cfs of river flows into the WSID intake canal from the San Joaquin and Tuolumne rivers. From the point of diversion, water gravity-flows through approximately 2 miles of the unlined intake canal to WSID's Lift Station No. 1. Habitat types currently within the proposed project action area include upland (limited to the disturbed/ruderal areas), riparian woodland, freshwater emergent wetland, irrigation canal, and riverine.

Valley Elderberry Longhorn Beetle

There are three records of beetle within 10 miles of the action area (CNDDDB 2018). These records are from 1984 and 1985 with the nearest record approximately 0.7 mile north of the action area, along the San Joaquin River on the SJRNWR (CNDDDB 2018). An elderberry shrub (the host plant of the beetle) survey was conducted in the proposed project area which included the action area and the lands within 100 feet of the limits of work. A total of 165 elderberry shrubs with at least one stem that measured 1 inch in diameter or greater at ground level were identified; five of these shrubs were identified directly in the proposed project action area and are expected to be removed during construction activities. Exit holes indicating occupancy of the site by beetle were observed on one of the 165 elderberry shrubs. The larvae of the beetle are impossible to detect because they persist only within the stems and adults in flight are rarely observed. However, the presence of host plants of sufficient size within riparian habitat and the detection of exit holes on elderberry shrubs within the site indicate that the beetle is likely to be present in the project area.

Least Bell's Vireo

There are two records of vireo within 10 miles of the action area (CNDDDB 2018). The most recent record, dated 2007, is located immediately north of the action area on the Hagemann Tract of the SJRNWR (CNDDDB 2018). Although no vireo surveys were conducted for the proposed project, 0.84 acre of riparian woodland habitat is located within and surrounding the proposed project action area. Suitable habitat occurs within the portions of the riparian woodlands that have thickets of willows and other shrubs. Vireos typically begin arriving in their breeding grounds approximately mid-March and leave for their wintering grounds around the end of September. The presence of suitable habitat and their documented presence on an adjacent property indicate that vireos are likely to be present during the breeding season.

Riparian Brush Rabbit

There are three records of rabbit within 10 miles of the action area (CNDDDB 2018). The most recent CNDDDB record, dated 2008, was a result of trapping efforts located at Caswell Memorial State Park, approximately 5.8 miles northeast of the proposed project action area, between 1993 and 2008 (CNDDDB 2018). More recently, continued trapping efforts resulted in the capture of two rabbits in 2012 (Matocq et al. 2015). In addition, re-establishment efforts have been conducted on the SJRNWR, with 49 captive-bred rabbits released in 2002 and 187 released in 2003. The rabbit population on the SJRNWR was supplemented annually from 2005 to 2010. As a result of these re-establishment efforts as well as the on-site efforts to restore the largest contiguous riparian woodland habitat in California, the largest population of rabbit now resides on the SJRNWR.

Although no rabbit surveys were conducted specifically for the proposed project, riparian woodland habitat is located within and surrounding the proposed project action area and numerous sightings have been made in close proximity to the WSID intake canal. Kelt et al. (2014) found that rabbits on the SJRNWR consistently preferred vegetation communities dominated by sandbar willow (*Salix exigua*) and mixed with dense shrubs, such as California blackberry and rose, and exhibited secondary preferences for open grassland and dense riparian; home ranges of rabbits on the SJRNWR ranged from approximately 3.68 to 5.21 acres. Approximately 0.84 acre of riparian woodland with thickets of willows and shrubs occur within the proposed project action area, with ruderal habitat comprising the majority of the balance of the upland areas within the proposed project action area. It is reasonable to assume that the riparian woodland present overlaps the home range of at least one rabbit.

Futhermore, SJRNWR conducted rabbit surveys from March 2017, during flooding of approximately 90% of rabbit habitat, through August 2017, when floodwaters had receded (Kim Forrest, Refuge Manager, pers. comm. April 24, 2018). These surveys conducted by SJRNWR staff resulted in multiple visual detections of rabbits along Hagemann Tract levees. Population estimates from these surveys are not possible due to the supplemental feed present on the levees and the restricted amount of usable habitat for rabbits during the flooding event, which likely skewed the surveys to more detections than during average conditions. However, these surveys do document that the rabbits are still present on the Hagemann Tract of the SJRNWR and utilize the associated levees as refugia, when necessary.

Riparian Woodrat

There are three records of woodrat within 10 miles of the action area (CNDDDB 2018). The most recent record, dated 2002, is located at Caswell Memorial State Park, approximately 5.8 miles northeast of the proposed project action area (CNDDDB 2018). Although no woodrat surveys were conducted specifically for the proposed project, riparian woodland habitat is located within and surrounding the proposed project action area as part of the largest contiguous riparian woodland habitat in California and the area immediately north of the proposed project action area was known to support the woodrat as late as 2010. No research has been conducted on the spatial distribution and habitat use of the riparian woodrat, but it likely has similar spatial distribution patterns of the dusky-footed woodrat, of which it is a subspecies. Territories of dusky-footed woodrats in the mixed conifer forest of the northern Sierra Nevada, California ranged from 0.14 to 18 acre (Innes et al. 2009). It is reasonable to assume that the 0.84 acre of riparian woodland habitat present overlaps the home range of at least one woodrat.

Effects of the Action

Valley Elderberry Longhorn Beetle

The proposed project is anticipated to result in adverse effects to the beetle through removal of riparian and non-riparian vegetation, including four elderberry shrubs and 0.84 acre of riparian woodland habitat. Removal of the shrubs and riparian habitat is likely to impair the ability of adult beetles to find suitable breeding and feeding habitat during the period of time between removal and the restoration of habitat to full maturity. The areas to be disturbed are likely to provide future opportunities for such behaviors once construction and restoration activities have been completed.

Destruction of these shrubs would be likely to result in the death of larvae within the shrubs to be removed. However, transplanting of the affected shrubs, as proposed in the conservation measures, should allow any beetle larvae living inside such shrubs to persist. Because the beetle spends most of its life as a larva inside the stem of the elderberry, and project activities will occur outside of the flight season, direct effects to the beetle are unlikely to occur as a result of the proposed project.

As noted previously in the Description of the Action section, the project proponent has also proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on the species of the proposed project's anticipated incidental take, resulting from the temporary loss of habitat described above. The compensatory habitat proposed will be in the form of transplanting affected elderberry shrubs and purchasing credits at an approved mitigation bank. This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory lands will provide suitable habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land will offset the impacts from the proposed project and may contribute to other recovery efforts for the species.

Least Bell's Vireo

The proposed project is anticipated to result in indirect effects to the vireo through degradation and removal of 0.84 acre of riparian woodland vegetation, which represents suitable breeding, feeding, and sheltering habitat for the vireo.

While WSID intends to avoid construction during the breeding season as much as possible, if construction does occur during this time, noise from construction activities prior to vegetation removal in the immediate vicinity may degrade the quality of the riparian habitat within the proposed project action area and result in abandonment of the area by the vireo. In multiple studies of the effects of noise on several songbird species demonstrated that it can interfere in intra-specific acoustic songbird signals. This includes mating calls and thus is likely to result in impaired mate selection and behaviors and exclude noise intolerant species from otherwise suitable habitat (Slabbekoorn and Ripmeester 2008, Francis et al. 2009).

In addition, anthropogenic disturbance, such as noise, likely results in animal responses similar to those of prey species upon encountering predators (Frid and Dill 2002). Specifically, animals respond to anthropogenic disturbance as a perceived predation risk by avoiding essential activities such as feeding and breeding behaviors and likely excludes the individual from otherwise suitable sheltering habitat as well.

In sum, it is reasonable to expect that noise from project-related construction activities will impair the ability of individuals to find and attract mates, if conducted during the breeding season, as well as to successfully feed and shelter as a result of increased predator vigilance behaviors. These effects will be offset by the avoidance of construction during the breeding season as much as possible and the establishment of adequate buffers around any nests. Buffers around an active nest will (1) reduce the amount of visual disturbance and human activity in close proximity, which will in turn reduce the amount of time and energy adults must expend in order to provision and defend their young and (2) provide a degree of sound attenuation from construction noise.

Removal of the riparian woodland vegetation is also likely to displace individuals, and impair their ability to find suitable breeding, feeding, and sheltering habitat until restoration of the riparian woodland habitat is complete and the restored habitat reaches maturity. Vireo displacement may further result in reduced fecundity and increased mortality as vireos spend extra resources and are more vulnerable to predators in their search for alternate breeding, feeding, and sheltering habitat. These effects will continue during the period of time between habitat removal and the restoration of habitat to full maturity.

Nesting least Bell's vireo could be crushed as a result of vegetation removal with heavy machinery if construction occurs during breeding season. However, the proposed conservation measures, which include conducting vegetation removal outside of the breeding season, surveys for nests and, if detected, the establishment of avoidance buffers for nesting vireos, will reduce the likelihood of crushing nesting vireos, as well as ameliorate noise disturbance

As noted previously in the Description of the Action section, the project proponent has also proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on the species of the proposed project's anticipated incidental take, resulting from the temporary loss of habitat described above. The compensatory habitat proposed will be in the form of providing funding for riparian woodland habitat restoration on the SJRNWR or the nearby Dos Rios Ranch, or, if neither are available, another nearby location, subject to USFWS approval. This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The restored lands will provide suitable habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost as a result of the proposed project. The provision of this compensatory habitat as part of a relatively large, contiguous block of conserved land will offset

the impacts resulting from the proposed project and may contribute to other recovery efforts for the species.

Riparian Brush Rabbit and Riparian Woodrat

The Service anticipates that effects of the action on the rabbit and woodrat will be similar in nature due to the similarities in life history and ecology. Indirect effects to the rabbit and woodrat are expected to occur through degradation and removal of 0.84 acre of riparian woodland vegetation, which represents suitable breeding, feeding, and sheltering habitat for these species. Disturbance from construction activities, prior to vegetation removal, in the immediate vicinity is likely to degrade the quality of the riparian habitat within the proposed project action area and resulting in these species' displacement from the site. Although not directly studied in rabbits or woodrats, anthropogenic disturbance, such as noise, likely results in animal responses similar to those of prey encountering predators (Frid and Dill 2002). Specifically, animals respond to anthropogenic disturbance as a perceived predation risk by avoiding essential activities such as feeding and breeding behaviors and likely excludes the individual from otherwise suitable sheltering habitat as well.

Removal of the riparian woodland vegetation is also likely to displace individual rabbits and woodrats and impair their ability to find suitable breeding, feeding, and sheltering habitat until restoration of the riparian woodland habitat is complete and the restored habitat reaches maturity. Displacement may further result in reduced fecundity and increased mortality as individuals spend extra resources and are more vulnerable to predators in their search for alternate breeding, feeding, and sheltering habitat.

The proposed project is likely to directly affect the rabbit and woodrat as a result of construction activities. Specifically, trenching, steep-walled holes, and stored pipes may expose these species to entrapment and injury or death. The proposed conservation measures, which include the installation of escape ramps and inspection of pipes for kit fox, will also serve to reduce the likelihood of entrapment, injury or death of the rabbit and woodrat. However, removal of riparian woodland vegetation with heavy machinery may also expose these species to injury and/or mortality as a result of crushing.

As noted previously in the Description of the Action section, the project proponent has also proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on the species from the proposed project's anticipated incidental take, resulting from the temporary loss of habitat described above. The compensatory habitat proposed will be in the form of providing funding for riparian woodland habitat restoration on the SJRNWR or the nearby Dos Rios Ranch, or, if neither are available, another nearby location, subject to USFWS approval. This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The restored lands will provide suitable habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land will offset the adverse effects of the proposed project and may contribute to other recovery efforts for the species.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal

actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the action area of the proposed project.

Conclusion

After reviewing the current status of the valley elderberry longhorn beetle, least Bell's vireo, riparian brush rabbit, and riparian woodrat, the environmental baseline for the action area, the effects of the proposed West Stanislaus Fish Screen Intake Project, and the cumulative effects, it is the Service's biological opinion that the West Stanislaus Fish Screen Intake Project, as proposed, is not likely to jeopardize the continued existences of these species. The Service reached this conclusion because the project-related effects to each species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of any of these species. This conclusion is based on the following reasons: (1) the small impact to species' habitat; (2) the temporary nature of the habitat disturbance and construction; and (3) the conservation measures proposed to minimize and avoid potential effects to these species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by Reclamation so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. Reclamation has a continuing duty to regulate the activity covered by this incidental take statement. If Reclamation (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Reclamation must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

Amount or Extent of Take

Valley Elderberry Longhorn Beetle

The Service anticipates that incidental take in the form of harm of valley elderberry longhorn beetle will be difficult to detect due to its life history and ecology. Specifically, valley elderberry longhorn beetles can be difficult to locate due to their cryptic appearance and finding a dead or injured individual is unlikely due to their small size. Harm to valley elderberry longhorn beetles may also be difficult to quantify as their numbers fluctuate seasonally, the number of individuals in the action area is unknown, and estimates of population density in the action area are unavailable. Therefore, the Service offers the following metric for determining when the authorized amount of take is exceeded: removal of more than five elderberry shrubs and/or the loss of more than 0.84 acre of riparian woodland will trigger the reinitiation of consultation. The Service does not anticipate any lethal take of valley elderberry longhorn beetle as a result of this project.

Upon implementation of the following reasonable and prudent measures, incidental take of valley elderberry longhorn beetle associated with the West Stanislaus Fish Screen Intake Project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Least Bell's Vireo

The Service anticipates that incidental take in the form of harm of least Bell's vireo will be difficult to detect due to its life history and ecology. Specifically, least Bell's vireos are highly mobile and, thus, individuals in the vicinity of the proposed project would be able to leave the area during construction activities. In addition, finding a dead or injured individual is unlikely due to their small size. Take by harm of least Bell's vireo may also be difficult to quantify as their numbers fluctuate seasonally, the number of individuals in the action area is unknown, and estimates of population density in the action area are unavailable. However, least Bell's vireo breeding behavior has been well documented within its range with territories averaging 0.5 to > 7 acres and average clutch size approximately 3 to 4 eggs (Kus 2002). Therefore, the Service offers the following metric for determining when the authorized amount of take is exceeded: more than one pair of vireo and more than four offspring identified as occupying the proposed project action area will trigger the reinitiation of consultation. The Service does not anticipate any lethal take of least Bell's vireo as a result of this project.

Upon implementation of the following reasonable and prudent measures, incidental take of least Bell's vireo associated with the West Stanislaus Fish Screen Intake Project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Riparian Brush Rabbit

The Service anticipates that incidental take of riparian brush rabbit, in the form of harm, will be difficult to detect. Specifically, these species may be difficult to locate due to their cryptic appearance and finding a dead or injured individual is unlikely due to their elusive nature. Although rabbits are highly mobile, individuals may become entrapped and/or injured during construction activities. Losses of rabbits may also be difficult to quantify as their numbers fluctuate seasonally, the number of individuals in the action area is unknown, and estimates of population density in the action area

are unavailable. Therefore, the Service offers the following metric for determining when the authorized amount of take is exceeded: the loss of more than 0.84 acre of riparian woodland will trigger the reinitiation of consultation. The Service anticipates that all riparian brush rabbits within the proposed project action area (84.5 acres), will be subject to incidental take in the form of harm.

The Service also anticipates that no more than one riparian brush rabbit may be detected as injured or dead on site during proposed project activities, at which point consultation should be reinitiated by Reclamation. By setting a threshold of one individual for each of these species, we have set an incidental take limit that is measurable and indicates that the rabbit and/or woodrat is being affected at level where avoidance and minimization measures and project implementation need to be re-evaluated and possibly modified. We conclude that the incidental take of riparian brush rabbit will be considered exceeded if two dead or injured rabbit are detected by biological monitors or other proposed project personnel.

Upon implementation of the following reasonable and prudent measures, incidental take of riparian brush rabbit associated with the West Stanislaus Fish Screen Intake Project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Riparian Woodrat

The Service anticipates that incidental take of riparian woodrat, in the form of harm, will be difficult to detect. Specifically, these species may be difficult to locate due to their cryptic appearance and finding a dead or injured individual is unlikely due to their elusive nature. Although woodrats are highly mobile, individuals may become entrapped and/or injured during construction activities. Losses of woodrats may also be difficult to quantify as their numbers fluctuate seasonally, the number of individuals in the action area is unknown, and estimates of population density in the action area are unavailable. Therefore, the Service offers the following metric for determining when the authorized amount of take is exceeded: the loss of more than 0.84 acre of riparian woodland will trigger the reinitiation of consultation. The Service anticipates that all riparian woodrats within the 0.84 acre of riparian woodland habitat to be removed within the proposed project action area (84.5 acres), will be subject to incidental take in the form of non-lethal harm.

The Service also anticipates that no more than one riparian woodrat may be detected as injured or dead on site during proposed project activities, at which point consultation should be reinitiated by Reclamation. By setting a threshold of one individual for each of these species, we have set an incidental take limit that is measurable and indicates that the woodrat is being affected at level where avoidance and minimization measures and project implementation need to be re-evaluated and possibly modified. We conclude the incidental take of riparian woodrat will be considered exceeded if two dead or injured woodrat are detected.

Upon implementation of the following reasonable and prudent measures, incidental take of riparian woodrat associated with the West Stanislaus Fish Screen Intake Project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to any of the aforementioned species or destruction or adverse modification of critical habitat. Removal of these shrubs and riparian habitat is likely to result in a slight decrease in the population due to the removal of all larvae within the shrubs and reduction of available breeding, feeding, and sheltering habitat

Reasonable and Prudent Measures

All necessary and appropriate measures to avoid or **minimize** effects on the beetle, vireo, rabbit, and woodrat, resulting from implementation of this project have been incorporated into the project's proposed conservation measures. Therefore, the Service believes the following reasonable and prudent measure is necessary and appropriate to **minimize** incidental take of these species:

1. All conservation measures, as described in the biological assessment and restated in the Description of the Action section of this biological opinion, will be fully implemented and adhered to. Further, this reasonable and prudent measure will be supplemented by the terms and conditions below.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Reclamation shall ensure compliance with the following Terms and Conditions, which implement the Reasonable and Prudent Measure described above. These Terms and Conditions are nondiscretionary.

The following Terms and Conditions implement Reasonable and Prudent Measure #1:

1. Reclamation will include full implementation and adherence to the Conservation Measures as a condition of any permit or contract issued for the proposed project.
2. Prior to construction, Reclamation will provide a copy of (1) the completed bill(s) of sale and payment receipt(s) to the Service upon the applicant's purchase of habitat conservation credits for the valley elderberry longhorn beetle; and (2) the executed agreement for the riparian habitat restoration.
3. The riparian woodland restoration will be initiated as soon as feasible after the project has been completed in the appropriate planting season. Reclamation will provide a report of completion to the Service.
4. Reclamation will require that all personnel associated with this project are made aware of the conservation measures and the responsibility to implement them fully.
5. In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Reclamation will adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Reclamation must immediately reinstitute formal consultation as per 50 CFR 402.16.

- a. For those components of the action that will result in beetle habitat degradation or modification whereby incidental take in the form of harm is anticipated, Reclamation will provide an accounting of the total elderberry shrubs with stems greater than or equal to 1 inch in diameter at ground level impacted after the completion of construction. This report will also include any information about changes in project implementation that result in habitat disturbance not described in the Description of the Action and not analyzed in this biological opinion.
- b. For those components of the action that will result in vireo, rabbit, and/or woodrat habitat degradation or modification whereby incidental take in the form of harm is anticipated, Reclamation will provide a precise accounting of the total riparian woodland habitat impacted after the completion of construction. This report will also include any information about changes in project implementation that result in habitat disturbance not described in the Description of the Action and not analyzed in this biological opinion.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Reclamation should report new sightings of the beetle or its exit holes, vireo, rabbit, and/or woodrat to the CNDDB. A copy of the reporting form and a topographic map clearly marked with the location in which the animal was observed also should be provided to the Service.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the West Stanislaus Fish Screen Intake Project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required and will be requested by the Federal agency or by the Service where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and:

- (a) If the amount or extent of taking specified in the incidental take statement is exceeded;
- (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
- (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or
- (d) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Patricia Cole (patricia_cole@fws.gov), at the letterhead address or at (916) 414-6544.

cc:

Julie Vance, Regional Manager, California Department of Fish and Wildlife, Fresno, CA
Shelly Hatleberg, Natural Resources Specialist, U.S. Bureau of Reclamation, Sacramento, California
Kim Forrest, Refuge Manager, San Luis National Wildlife Refuge Complex, Los Banos, California
Shane Abeare, Fish Biologist, U.S. Fish and Wildlife Service, Lodi, California

References

- California Natural Diversity Database. 2018. Natural Heritage Division, California Department of Fish and Wildlife. RareFind 5. Sacramento, California. Accessed April 23, 2018.
- Francis, C.D., C.P. Ortega, and A. Cruz. 2009. Noise Pollution Changes Avian Communities and Species Interactions. *Current Biology* 19:1415-1419.
- Frid, A. and L. Dill. 2002. Human-caused Disturbance Stimuli as a Form of Predation Risk. *Conservation Ecology* 6(1): 11.
- Innes, R.J., D.H. Van Vuren, D.A. Kelt, J.A. Wilson, and M. L. Johnson. 2009. Spatial Organization of Dusky-footed Woodrats (*Neotoma fuscipes*). *Journal of Mammalogy* 90(4):811-818.
- Kelt, D.A., P.A. Kelly, S.E. Phillips, and D.F. Williams. 2014. Home Range Size and Habitat Selection of Reintroduced *Sylvilagus bachmani riparius*. *Journal of Mammalogy* 95(3):515-524.
- Kus, B. 2002. Least Bell's Vireo (*Vireo bellii pusillus*). In *The Riparian Bird Conservation Plan: a Strategy for Reversing the Decline of Riparian-associated Birds in California*. California Partners in Flight. http://www.prbo.org/calpif/htmldocs/riparian_v-2.html. Accessed 25 May 2018.
- Matocq, M., P. Kelly, J. Rippert, and S. Phillips. 2017. Population Genetic Structure of the Riparian Brush Rabbit (*Sylvilagus bachmani riparius*): Using Multiple Marker Systems to Gain Insight into Historic and Ongoing Genetic Connectivity. Final report submitted to the CVPIA Habitat Restoration Program, 41 pp.
- Phillips, S., T. Edgarian, and P. Kelly. 2013. Habitat Suitability and Connectivity for Riparian Brush Rabbits in the Northern San Joaquin Valley and Sacramento/San Joaquin River Delta. Unpublished report prepared for U.S. Fish and Wildlife Service. Prepared by Endangered Species Recovery Program, California State University, Stanislaus, Turlock, California.
- [Service] U.S. Fish and Wildlife Service. 2017. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28 pp.
- _____. 2012. Riparian Woodrat (*Neotoma fuscipes*) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service; Sacramento, California. 26 pp.
- _____. 2011b. Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance. <https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/kitfox_standard_rec_2011.pdf>. Accessed 26 April 2018.
- _____. 2006. Least Bell's Vireo (*Vireo bellii pusillus*) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service; Carlsbad, California. 26 pp.

_____. 1999. San Joaquin Kit Fox Survey Protocol for the Northern Range. <https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/kitfox_no_protocol.pdf>. Accessed 26 April 2018.

Slabbekoorn, H. and E.A.P. Ripmeester. 2008. Birdsong and Anthropogenic Noise: Implications and Applications for Conservation. *Molecular Ecology* 17:72-83.